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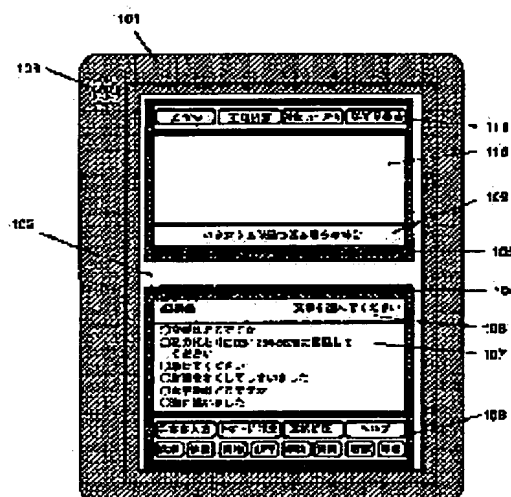
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(54) CONVERSATION DEVICE

(57)Abstract:

PURPOSE: To realize a smooth and natural conversation by providing separate display regions for a user and the person to whom the user wishes to make the conversation.

CONSTITUTION: A conversation device 101 is used by a person who is handicapped in his speech and hearing functions, has a difficulty in conducting a normal voice conversation and wishes to exchange information with other person. The device 101 is provided with a display screen 102 to display sentences and a speaker 103 which outputs voice synthesized sentences. Various sentences, the need of which are predicted, are beforehand registered and they are called up as required so as to support the two-way conversation between the handicapped person and the other person. The screen 102 is divided into a display region 104 which is used for the user and a display region 105 which is used for the other person. Directions of the regions 104 and 105 are reversed with respect to each other so that they are easily used for the both persons.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the portable conversation equipment with which the conversation of the user who has a handicap in a language function or an acoustic sense is assisted.

[0002]

[Description of the Prior Art] When a failure is in a language function or an acoustic sense and a person with a difficult conversation with the usual voice performs volitional Bahnung with others, generally sign language and conversation by writing conversation are held. Moreover, the conversation equipment which was equipped with the keyboard as an input means and was equipped with the speech synthesis means, the paper tape, etc. as an output means is proposed. The language inputted by the keyboard is outputted to JP,57-173875,A with a paper tape, and the conversation equipment which tells the volition of conversation initiation with a voice generating means is proposed.

[0003]

[Problem(s) to be Solved by the Invention] Although the conversation by sign language is very effective in the conversation of those which understand sign language mutually, when you want for each other to tell the person and volition which do not understand sign language, or when the trouble back tone itself has not gained sign language for a certain reason, the conversation by sign language is impossible.

[0004] Inputting language telling using a keyboard like the conversation equipment by which the conventional proposal is made has complicated actuation, and it requires time amount. Although there is also a thing with the function to register a fixed form sentence, in calling the fixed form sentence registered in large quantities independently of the flow of conversation, there is a problem that retrieval of language to tell is difficult.

[0005] Moreover, with conventional conversation equipment, although a user's volition could be told to others by the text input using a keyboard, in order to understand a partner's remark, I also needed to have the partner of conversation input a text using a keyboard, and there was a problem of being hard to take smooth communication.

[0006]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, with the conversation equipment by this invention, the example required for conversation is registered beforehand. At this time, all examples are registered in accordance with the flow of conversation including examples, such as a reply sentence assumed that not only the example that is needed for an equipment user side speaking but that conversation partner speaks.

[0007] Here, the data of an example are held as DS equipped with the link to the set of another example related with the example. The set of the example mutually associated with the common term here is carried out to calling it a card. One example surely belongs to a card and the data of an example are defined recursively. That is, the example by which the card associated as a candidate of a reply sentence to a certain example is contained in a card, including at least one example further holds the link to again still more nearly another card. Moreover, the keyword for

searching an example is also regarded as one example, and is defined as a card which summarizes and links the example searched from the keyword.

[0008] The data-processing section is taken as a configuration including a means to display the set of the example which is the contents of the above-mentioned card, the means as which the user or its conversation partner of equipment is made to choose an example from cards, and a means to perform the selected display and/or selected voice output of an example. At this time, the display which performs the display of the card which is the candidate of an example, or the selected example is divided into the viewing area (the 1st viewing area) and the viewing area of the conversation other party by the side of an equipment user (the 2nd viewing area) at least, and each display is performed separately.

[0009] Moreover, it is desirable to have the handwriting input function to input an alphabetic character and a picture in handwriting, the keyboard entry function as an auxiliary input means, the example edit function into which the user of equipment can register an example freely supposing the flow of conversation as a miscellaneous function.

[0010]

[Function] If the keyword for searching the example displayed on the 1st viewing area is chosen by the equipment user, the data-processing section will display the set of the card linked to the keyword, i.e., the example searched from the keyword, on the 1st viewing area. If an equipment user chooses one example from this inside -- the data-processing section -- those contents -- the 2nd viewing area -- a display and/or the equipment user who did the voice output, told the conversation partner, and displayed and chose the same contents also as the 1st viewing area -- he is told. The candidate of the reply sentence which is the contents of the card furthermore linked from the example is displayed on the 2nd viewing area. If a conversation partner chooses the example of arbitration from the inside, the contents will be similarly told to an equipment user.

[0011] Card-face ** relevant to it since the link to a related card is held recursively, whenever the user or its conversation partner of equipment chooses an example is performed with a display and/or voice output of the contents, and a bidirectional conversation of each example is attained.

[0012] Moreover, if the handwriting input function and the keyboard entry function are prepared, when contents to tell a partner are not registered as an example, or also when the candidate of a reply sentence to a certain example does not exist, it can respond flexibly. If the example edit function is furthermore prepared, while an equipment user assumes beforehand that the flow of conversation likes it about a certain subject, an example can be registered, and it will enable a user to lead the flow of conversation.

[0013]

[Example] Drawing 1 expresses the appearance of the conversation equipment of the example by this invention. Conversation equipment 101 is equipped with the display screen 102 for displaying an example, and the loudspeaker 103 for outputting what synthesized voice from the example. Screen 102 has composition which combined the liquid crystal display and the touch panel, and chooses directly the objects (an example, menu button, etc.) currently displayed on the screen using the finger or the pen. Moreover, Screen 102 is divided into the viewing area 104 for an equipment user, and the viewing area 105 for the conversation partner, and each field is displayed in the direction which the upper and lower sides reversed mutually so that conveniently [meeting and talking].

[0014] The viewing area 104 for equipment users consists of a field 106 which displays a scene / keyword name, and a message, a field 107 which displays an example and a keyword by text format, and a field 108 which displays conversation control, the menu button on the screen for scene selection, etc. further. The viewing area 105 of the conversation other party is similarly equipped with the message region 109, the text display field 110, and the menu button viewing area 111.

[0015] Drawing 2 is the easy hardware of this conversation equipment. Conversation equipment consists of touch panels 205 for obtaining the input of the liquid crystal screen 204 for displaying the loudspeaker 203 for outputting the memory 202 for saving CPU201, and the program and

data for controlling equipment, and voice, an example, etc., example selection, etc.

[0016] In memory 202, the program 206 which controls processing, and the data 207 of an example are saved, and a program 206 is loaded when a power source is switched on.

[0017] Drawing 3 shows a system configuration and data flow. The whole processing is controlled by the control program 301. A control program 301 controls display of a screen, selection of an example, etc. by calling the program which controls directly the hardware called the driver software 302. There are mainly three kinds of programs, the voice output driver 303, the screen-display driver 304, and the coordinate input driver 305, in the driver software 302. The voice output driver 303 performs speech synthesis in response to an instruction of the voice output from a control program 301 from the example data taken out from memory 207, and outputs this through a loudspeaker 203. The screen-display driver 304 takes out the data of a set of the example which should be displayed from memory 207 in response to an instruction of a screen display from a control program 301, and displays this on the liquid crystal screen 204. The coordinate input driver 305 receives the input from a touch panel 205, and returns the coordinate to a control program 301.

[0018] Next, it explains how the screen of this conversation equipment changes according to the flow of conversation using drawing 4 and drawing 5.

[0019] Drawing 4 shows a screen when the equipment user has chosen the example contained in a scene "urgent." The scene name 401 of "being urgent", and the examples 402-407 which are the candidates of the text contained in the scene are displayed on the viewing area 104 for equipment users. In addition, the scene "urgent" is called by choosing the "urgent" scene selection carbon button 408. Selection of an example is completed by detaching, after pushing a desired example with a direct finger or a pen.

[0020] At drawing 4, the example 403 "please telephone 03-1234-5678 instead of me" is pushed by the fingertip by a user's hand 409. An example 403 is displayed in white and is displayed so that the text which it is going to choose in this condition can be checked. In addition, while the equipment user has chosen the example, a message 410 is displayed "to reply to the sentence about which it will speak from now on" on the viewing area 105 for conversation partners.

[0021] Selection of the example in drawing 4 just completed drawing 5. If a finger is lifted, the contents of the selected example will be displayed on both the viewing area 104 for users, and the viewing area 105 for conversation partners (501,502). Moreover, the mark 504 showing having synthesized voice from the contents of this example, having been uttered from the loudspeaker (503), and having uttered to coincidence is displayed on the viewing area 104 for users. On the other hand, an example 506 "since it is in a hurry now, he cannot telephone" is displayed on the viewing area 105 for conversation partners as an example 505 "certainly" as a candidate of a reply sentence to an example "please telephone 03-1234-5678 instead of me." If a conversation partner chooses one of examples [them] here, the contents will be told to an equipment user and conversation will be materialized. If the reply sentence is further registered into the reply from the conversation partner, a further bidirectional conversation can be continued (for example, the contents, still more detailed information, etc. I want you to telephone and tell to the reply sentence "certainly" from a partner), and they can be performed.

[0022] Drawing 6 expresses the DS of a card, a keyword example, and a menu button. DS 601 of a card -- example selection or keyword selection -- ** -- the pointer 604 to the keyword or example contained in the class 602 of said card, the data 603 of the text displayed on a message region, and its card is defined at least. One or more the keywords or examples of a number of arbitration can be included in one card.

[0023] The same DS can define a keyword, an example, and a menu button fundamentally, and the pointer 608 to the card linked from a class (are they a keyword, an example, and a menu button?) 606, the number 607 of the text displayed, and synthesized voice from which and uttered, its keyword, the example, or the menu button is defined as the DS 605 at least.

[0024] Drawing 7 expresses fundamental processing of the translation device control program based on defined data with a flow chart. If a power source is inputted at step 701, an initial screen will be first set to the card displayed on a screen at step 702. It is the step of the repeat

from this following step.

[0025] In step 703, the screen-display driver 304 explained by drawing 3 is called, the card (the first display is an initial screen) set to the marker card is displayed, and then a variable is initialized at step 704. It waits for the input of the touch panel by the coordinate input driver 305 explained by drawing 3 at step 705. If there is an input from a touch panel, it will investigate whether the object chosen at step 706 is a menu button. If a menu button is chosen, the card linked to the menu button at step 707 will be set to a marker card, and it will return to step 703. Moreover, it investigates whether the keyword was chosen at step 708, the card linked to the keyword at step 709 if it is a keyword is set to a marker card, and return and these actuation are repeated to step 703.

[0026] At step 706 and step 708, if the selected object is not a menu button or a keyword, either, step 710 will investigate next whether it is an example. If the selected things are not any of a menu button, a keyword, and an example, either, it will return to step 705. If the selected thing is an example, the screen-display driver 304 in drawing 3 will be called at step 711, and the contents of the selected example will be displayed. Next, it synthesizes voice at step 712, the voice output driver 303 in drawing 3 is called at step 713, and voice is uttered. Furthermore, at step 714, the card linked to the example is set to a marker card, and the processing from return and a screen display is repeated to step 703.

[0027] Drawing 8 and drawing 9 explain the application of the function except choosing texts displayed on the screen, such as an example and a keyword.

[0028] Drawing 8 shows the example of the handwriting input function which is a miscellaneous function of this conversation equipment of operation. for example, where "alternation is -- please draw and tell picture --" -- ** -- supposing an equipment user chooses the example 801 to say, a conversation partner's viewing area will turn into a handwriting input area, and the pictures 802, such as a map which the conversation partner drew with the pen, will be displayed also on an equipment user's viewing area (803). Thus, this function is effective when explaining by means of language wants to carry out writing conversation about difficult contents and the subject which is not registered beforehand.

[0029] Moreover, drawing 9 shows the example of the text input by the keyboard which is another miscellaneous function of this conversation equipment of operation. In this example, in order to tell against the text which is not registered as an example, the keyboard 901 on a screen was called and it has just been going to input the text 902 "where the next stop station is." Thus, since the text inputted into arbitration using the keyboard is transmitted to a partner by speech synthesis, a free conversation is attained. If it is made furthermore easy to use, a handwriting recognition function may be used instead of a keyboard call.

[0030] Since others are equipped with the example edit function as a miscellaneous function and the equipment user itself can register an example beforehand supposing the flow of conversation, a user can lead the flow of conversation.

[0031] As mentioned above, although this example has explained the conversation equipment of dedication, it is also possible to carry the software which performs this processing in the personal computer which is circulating ordinarily, and to realize conversation assistance. In this example, the liquid crystal screen and the touch panel were used so that it could respond to the various input approaches, such as a handwriting input, but if it is the configuration which can display the set of an example and can choose one example from these, it is not necessary to restrict to the configuration of this example.

[0032] Moreover, although the conversation equipment of a portable form was assumed in this example, if the approach of this invention is used, the conversation equipment of the form deferred at a public office or the various windows is also realizable.

[0033]

[Effect of the Invention] According to this invention, it becomes possible to assist not only transfer of mere volition but bidirectional conversation to the existing user difficult for a failure's being in a language function or an acoustic sense, and telling a partner volition by registering the example assumed in accordance with the flow of conversation beforehand, and calling it if needed. A natural conversation can be assisted without making the flow of conversation stop by

preparing a viewing area the object for equipment users, and for conversation partners separately.

[0034] Furthermore, a more nearly free conversation can be offered by having various kinds of miscellaneous functions, such as a handwriting input function, and a keyboard call, an example edit function.

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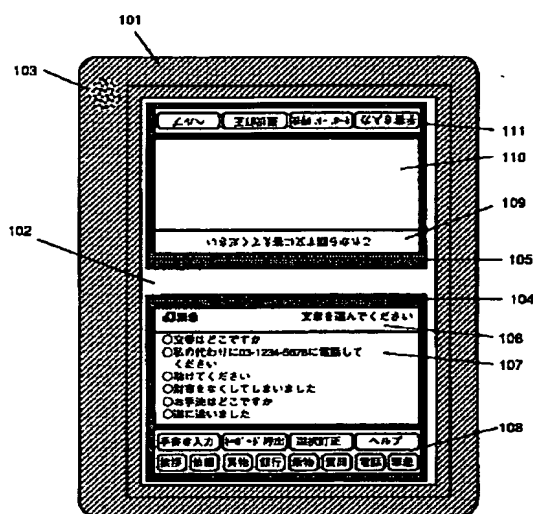
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DRAWINGS

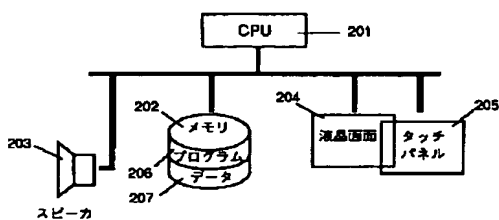
[Drawing 1]

図 1



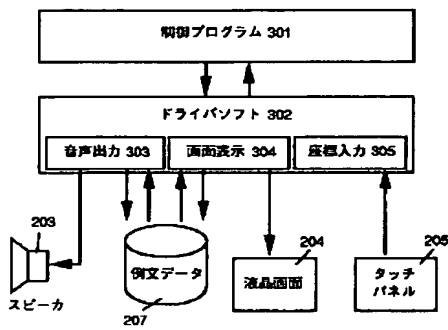
[Drawing 2]

図 2



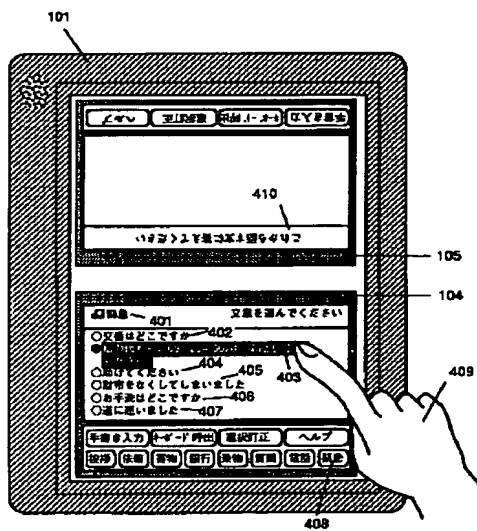
[Drawing 3]

図 3



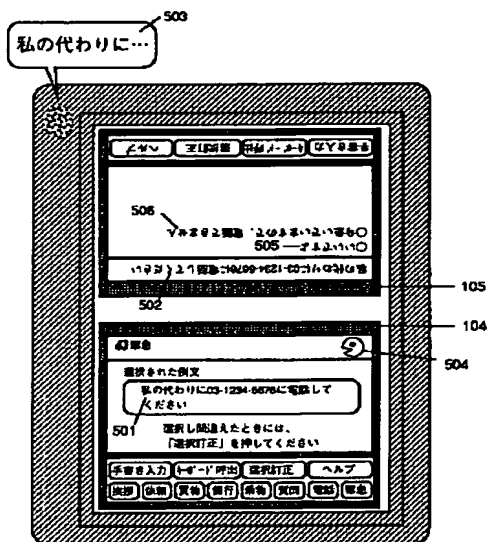
[Drawing 4]

図 4



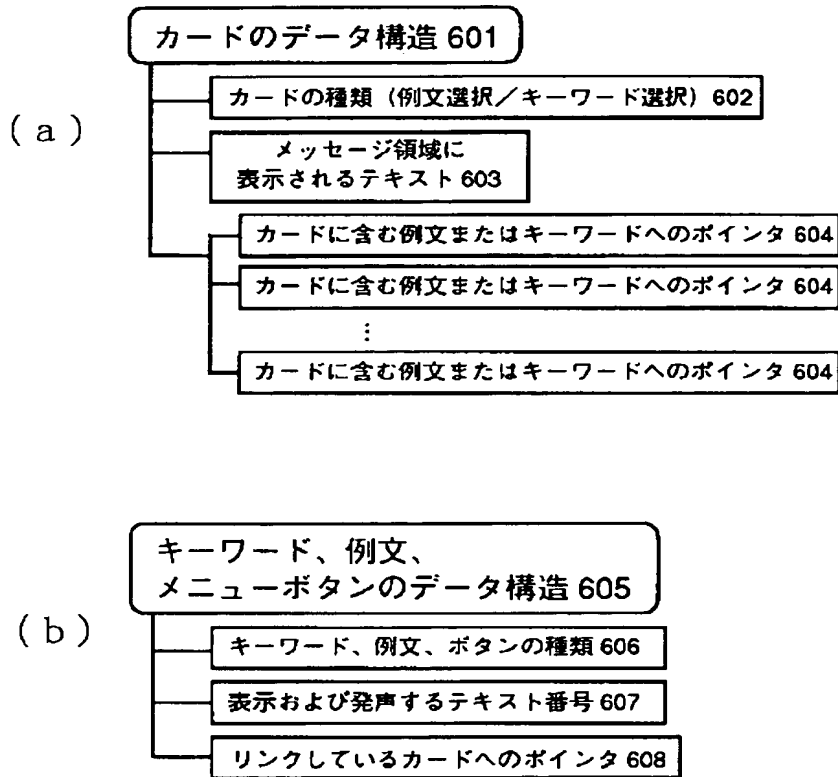
[Drawing 5]

図 5



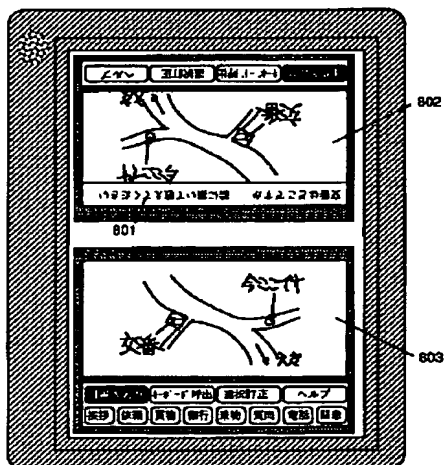
[Drawing 6]

図 6



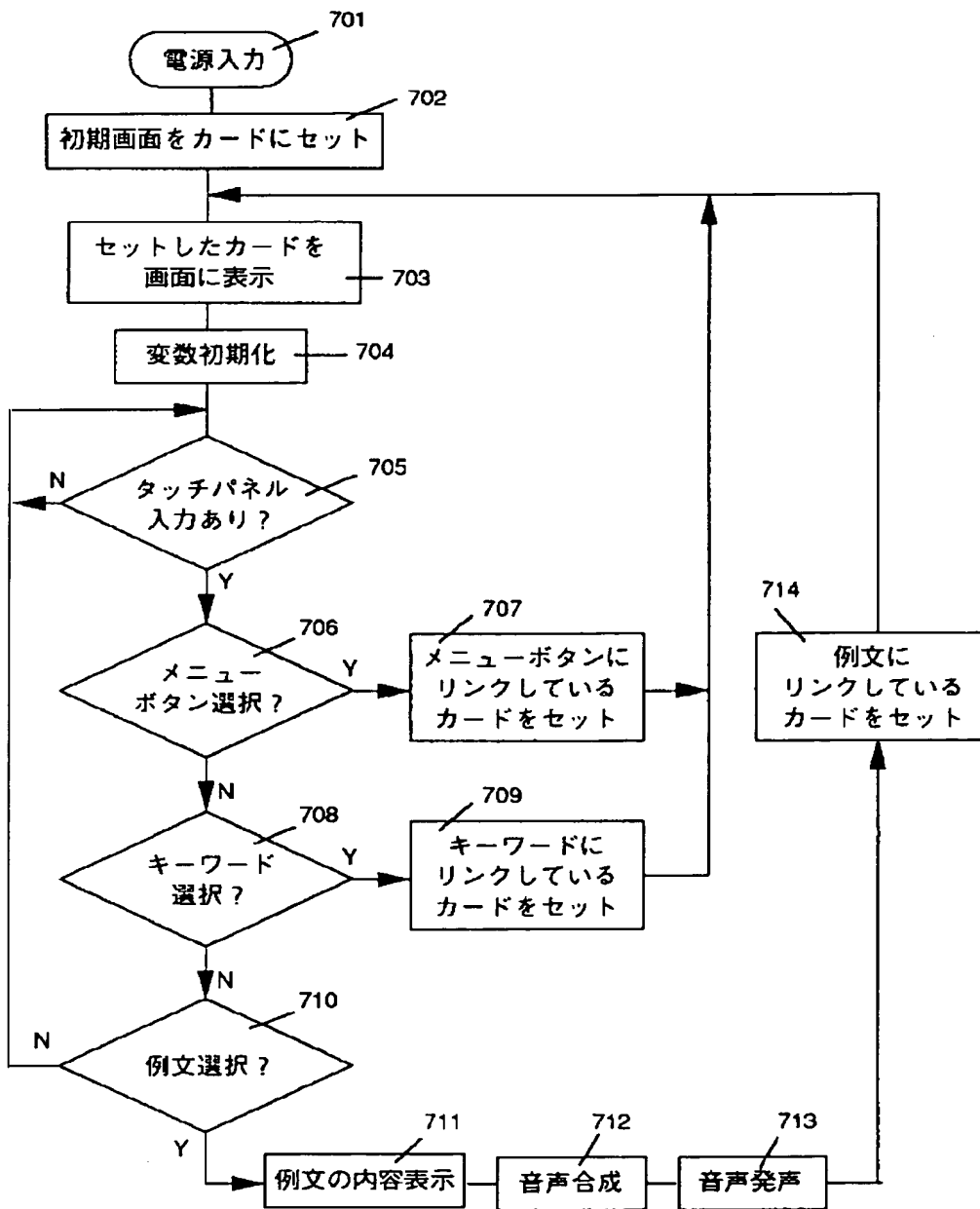
[Drawing 8]

図 8



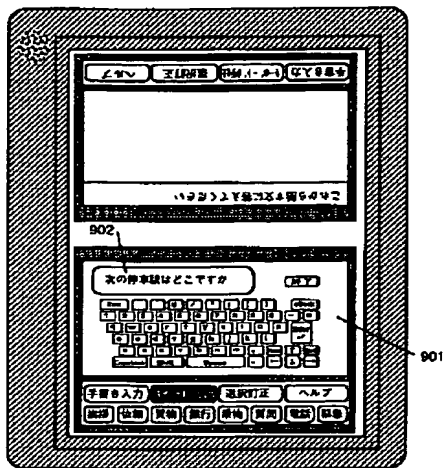
[Drawing 7]

図 7



[Drawing 9]

図 9



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